



NASA LAUNCH SERVICES

LAUNCH SERVICES

Discovery Announcement of Opportunity NASA Launch Services

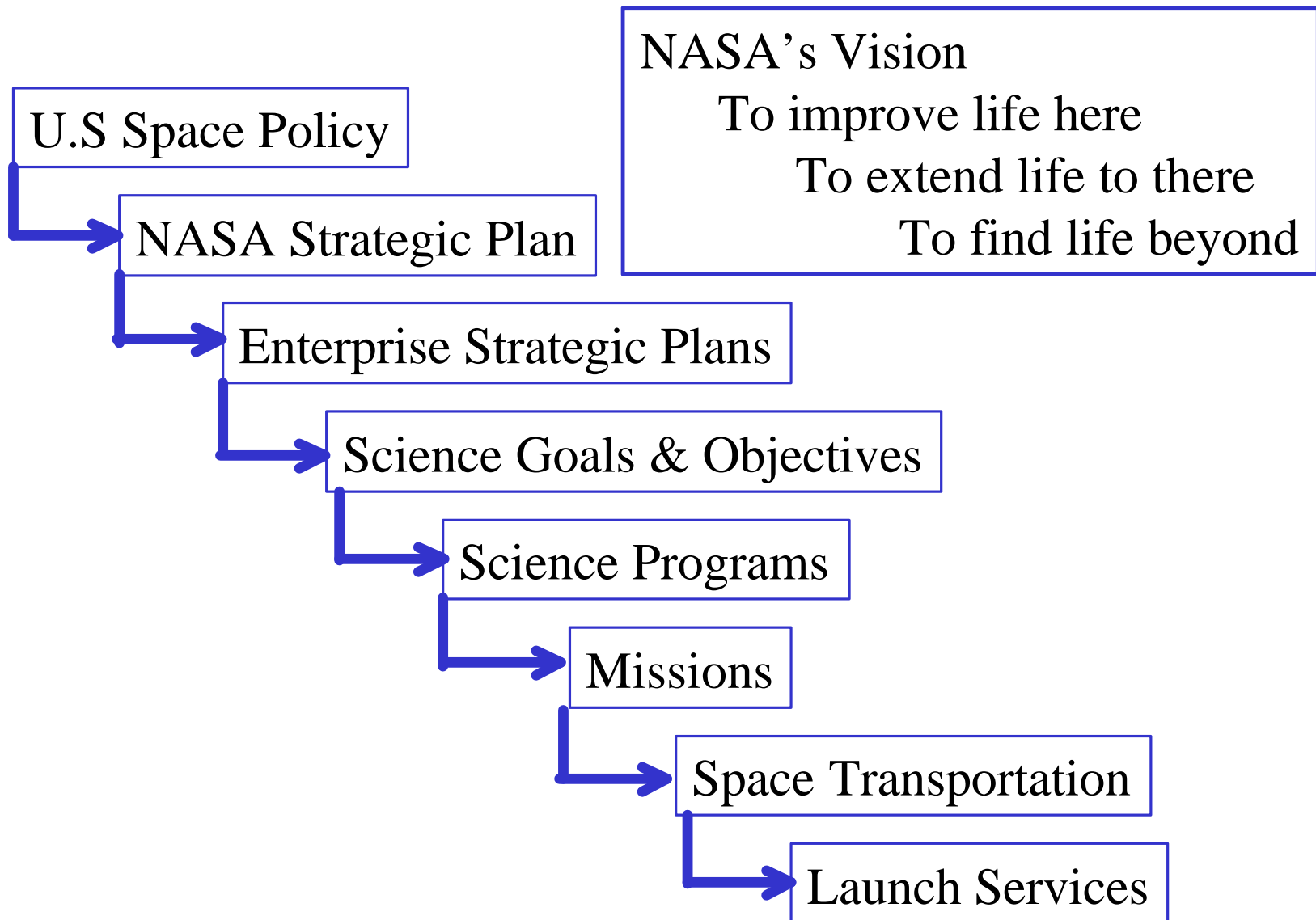
**NASA Headquarters
Office of Space Flight
Space Access**

**John C. Schafer
April 28, 2004**



National Space Policy to Launch Service

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Launch Services Organization

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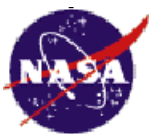
- **The Launch Services Program is Responsible for:**
 - **Identifying and Aggregating Agency Launch Requirements**
 - **Assuring Access to Space on All Available Launch Systems**
 - Shuttle
 - DOD
 - Commercial Launch Vehicles
 - Foreign Vehicles
 - **Providing “Front Door” to Agency/DOD payload customers**
 - **Leading HQ strategy for meeting requirements/managing priorities/conflicts**
 - **Integrating manifest for both Shuttle and ELV**
 - **Providing Program Direction for Launch Service Program**
 - **Identifying/acquiring new launch services**
 - **Providing Agency technical leadership for space transportation policy discussions**
 - **Providing Single Interface for Enterprise Payload Customer at Headquarters**
 - **Establishing Space Access Manifest - NASA Flight Planning Board**



NASA LAUNCH SERVICE PRIMARY PAYLOAD

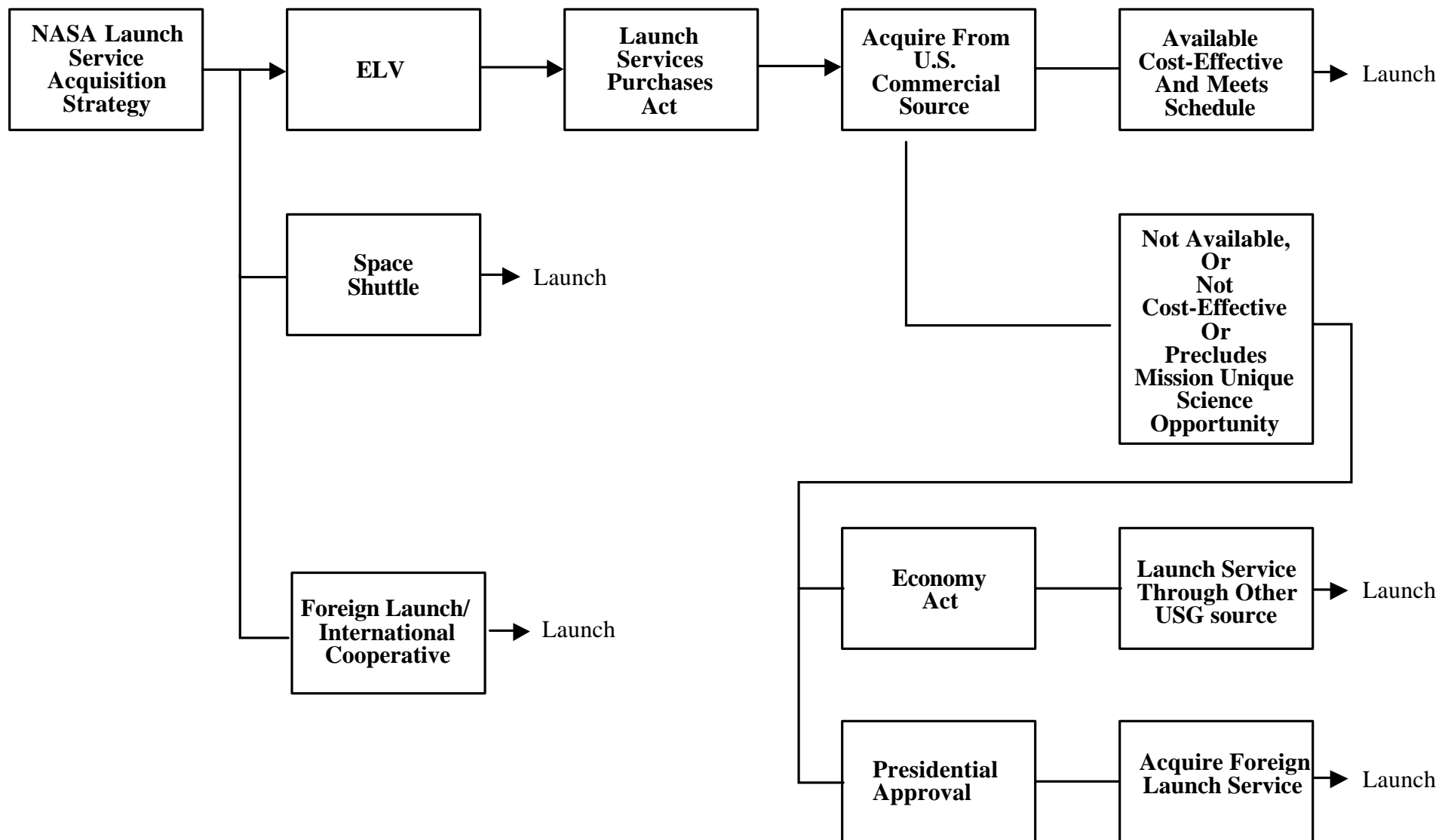
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- **Science Enterprise AO**
 - **Proposals to meet scientific objectives of the agency**
 - **AO provides guidelines for spacecraft and launch vehicle**
- **The proposal(s) selection based on scientific merit, technical, management, cost.**
- **Science enterprise brings the new requirement to the Flight Planning Board**
- **Launch service requirement evaluated by flight planning board**
 - **Risk**
 - **Launch date**
 - **Launch Vehicle (availability, launch history)**
 - **Launch service contract**
- **Launch services program located at KSC - Authorized by flight planning board for acquisition of launch services**



NASA Launch Alternatives

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- **Domestic Expendable Launch Services - Procured and managed by NASA**
- **Science Enterprise Baseline Medium Performance Class (Delta II)**
- **Other Performance class missions can be addressed on case-by-case basis**
- **AO Proposers should not attempt to discern differences in risk or costs within each launch vehicle classes**
- **Launch Service Costs – Costs for vehicle classes are provided in the Discovery AO Library**



Alternate Launch Services

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- **Foreign Launch Services**
 - **International Cooperative Agreement – No funds exchanged basis**
 - **Non Nuclear Payloads Only**
 - **Address export control & technology transfer issues**
 - **Launch vehicle availability**
 - **Consistent with NASA NPD 8610.7**
 - **Flight history**
 - **Technical risk mitigation**
 - **Costs - Technical insight & risk mitigation**
 - **Evaluated on case-by case basis**
- **Dual manifest or secondary payloads on domestic LV's may be considered under this AO**
 - **Proposer's responsibility to address co-manifest or primary partner technical, management, cost, and availability issues**



NASA ELV Policies

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- **NASA Launch Services consistent with the following Agency-level NASA Policy Directives (NPD):**
 - **NPD 8610.7, Launch Services Risk Mitigation Policy for NASA-Owned Or NASA-Sponsored Payloads**
 - **NPD 8610.23A, Technical Oversight of Expendable Launch Vehicle (ELV) Launch Services**
 - **NPD 8610.24A, Expendable Launch Vehicle (ELV) Launch Services Pre-launch Readiness Reviews**



NASA LAUNCH RISK MITIGATION POLICY

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- **Launch services risk mitigation policy for NASA-owned or NASA sponsored payloads (NPD 8610.7 2/4/99)**
- **Establishes process to assess mission risk based on vehicle maturity and demonstrated flight history**
- **Three categories of risk:**
 - **Cat 1: Missions deemed non-mission critical can be considered for flight on vehicles with no flight history**
 - **Cat 2: Missions deemed mission critical to enterprise strategic plan and of moderate cost/complexity can be flown on NASA-acquired services with at least one demonstrated flight**
 - **Cat 3: Missions deemed mission critical with complex interface and higher cost to be flown on vehicles with demonstrated flight history (14 consecutive flights)**



NASA LAUNCH SERVICES

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- **Launch Services includes:**
 - **Launch Vehicle**
 - **Standard Services**
 - **Non-Standard services (mission unique options)**
 - **Payload Processing Facility**
 - **Nominal mission specific modifications**
 - **Launch service technical management**
 - **All NASA insight, oversight, & approvals**
 - **Launch Vehicle Telemetry**
 - **Safety and mission assurance**
 - **Independent launch service assessment**
 - **Launch campaign and day-of-launch management**
- **Nuclear Missions includes:**
 - **Databooks**
 - **Launch site accommodations for nuclear materials**
 - **Material handling/logistics by DOE**
 - **Range Safety requirements**



LAUNCH SERVICE EVALUATION

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- **AO Proposers must coordinate with NASA KSC Launch Services – Input directly from commercial Launch Service Providers will not be considered/evaluated**
- **Evaluation of Launch Services includes:**
 - **Overall assessment**
 - **Performance (Margin)**
 - **Cost**
 - **LV to SC Interface**
 - **PLF**
 - **Mechanical Interface**
 - **Environments**
 - **Mission Unique Modifications**

APPROVED
2/23/04

NASA LAUNCH SERVICES MANIFEST

(FY 2005 PRESIDENT'S BUDGET- NASA Internal Use Only)

	FY '04	FY '05	FY '06	FY '07	FY '08	FY '09	FY '10	FY '11
•SECONDARY (S) •DELTA (D/S) •TAURUS (T/S)		△ TBD SPACETECH 5 12/04 (UR)			TBD △ SPACETECH 9 2Q/08			
•SMALL CLASS (SC) •PEGASUS (P) •TAURUS (SH)		✓ P DART - 10/18	P ✓ SPACETECH 8 - 7/08 P ✓ AIM - 9/06	T ✓ Orbiting Carbon Observatory - 8/07	✓ T GLORY - 12/07 ✓ P SMEX-10 - 11/07	△ SC SMEX-11 - 11/08	✓ SC SMEX-12-2/10	△ SC SMEX-13 - 2/11
•MEDIUM CLASS (MC) •DELTA 7325/7320 (D3) •DELTA 7425/7426 (D4) •DELTA 7920/7925 (D) •DELTA 7920 H (DH) •TITAN II (T-II) - VAFB	✓ D GPB - 4/17 △ DH MESSENGER - 5/11 ✓ D AURA - 6/20 D3 △ SWIFT - NET 9/1 D3 ✓ NOAA N - NET 9/15	△ D DEEP IMPACT - 12/30 ✓ D4 CLOUDSAT/CALIPSO NET 3/29*	✓ D3 NOAA-N* - 1/06 (UR) △ D STEREO - 2/06 △ DH DAWN - 5/06 D △ THEMIS (MIDEX-5) 8/22	✓ D NPP - 10/06 △ DH GLAST - 5/07 D4 STSS - 7/07 D △ PHOENIX - 8/9 (MARS SCOUT)	✓ D3 OCEAN SURFACE TOPOGRAPHY - 10/07 △ D KEPLER - 10/07 D4* WISE (MIDEX-6) 6/08 D3 ✓ AQUARIUS - 9/08 △ D LUNAR ROBOTIC RECON ORBITER - 2/08	△ D* DISCOVERY 11 2/09 △ D* LUNAR ROBOTIC LANDER - 2/09	D4* ✓ MIDEX-7 - 8/10 △ D* LUNAR ROBOTIC RECON ORBITER - 2/10	MC △ DISCOVERY 12 2Q/11 MC ○ ESSP - 3Q/11 D4* △ MIDEX-8 - 8/11 △ D* LUNAR ROBOTIC LANDER - 2/11
•INTERMEDIATE (IC) / HEAVY CLASS (HC) •ATLAS (AIII&AV) •DELTA (DIII&IV) •DELTA IV HEAVY (IVH)		AV △ MARS RECON ORBITER - 8/10 ○ DIV GOES-N - 12/1	△ AV NEW HORIZONS 1/11 ○ DIV GOES-O - 12/05	○ DIV GOES-P - 4/07	△ IC SDO - 4/08	△ IC NEW FRONTIERS 2 12/08	△ IC MARS TELECOM* 10/09 △ IC MARS SCIENCE LAB - 10/09* △ HC SIM - 12/09	MC △ LISA - 3Q/11 IC △ NEW FRONTIER 3 3Q/11

* FOR NASA PLANNING PURPOSES
UR - Under Review

△ = OSS

○ = OES

□ = OSF

◇ = OAT

⬡ = OBPR

⬢ = DOD REIMBURSABLE

✓ = VAFB LAUNCH

K. DOMATOWSKI
C. CALVAC FY05 POP 2/23/04